

Nutsedge and Kyllinga Species

Matthew T. Elmore, Former Graduate Research Assistant

James T. Brosnan, Associate Professor

Gregory K. Breeden, Extension Specialist

Department of Plant Sciences

Introduction

Sedges (*Cyperus* spp.) and kyllingas (*Kyllinga* spp.) are weed species that are not only similar in appearance but also share the unique trait of being classified as neither a broadleaf nor grassy plant. Yellow nutsedge (*Cyperus esculentus*), purple nutsedge (*Cyperus rotundus*), green kyllinga (*Kyllinga brevifolia*) and false-green kyllinga (*Kyllinga gracillima*) are the primary species found in Tennessee. All sedges and kyllingas are perennial plants that are troublesome to manage and control in a turfgrass environment.

Life Cycle and Growth Habit in Tennessee

Sedges and kyllingas emerge in late spring and grow throughout the summer months in Tennessee until the first killing frost. Once growth ceases, leaves turn brown and plants enter winter dormancy (Figure 1). Reproduction occurs primarily through rhizomes and underground tubers (often called “nutlets”). Sedges and kyllingas are considered indicators of excessive irrigation and/or poor drainage, as they commonly invade turfgrasses grown on soils that have remained excessively moist for an extended period of time.

Sedge and Kyllinga Identification

Sedges are most easily identified by their triangular stem (Figure 2). Unlike grasses, they are devoid of hairs, auricles,

collars and ligules. Leaves are slender and their waxy cuticle gives them a shiny appearance (Figure 3). Inflorescences (flowers/seed heads) produced from plants left un-mowed do not affect reproduction, as they contain few viable seeds. During the summer, vertical growth of sedges is often more rapid than of surrounding turf.



Figure 2: Triangular stem of yellow nutsedge (*Cyperus esculentus*)



Figure 1: Frost-induced yellow nutsedge (*Cyperus esculentus*) leaf-browning



Figure 3: Yellow nutsedge (*Cyperus esculentus*)

Yellow nutsedge leaves are light green to yellow, while purple nutsedge leaves are dark green. Yellow nutsedge leaf tips are tapered to a point (Figure 4) while purple nutsedge leaf tips have a more direct point. Inflorescences also aid in nutsedge identification; yellow nutsedge produces a yellow inflorescence (Figure 5), while purple nutsedge produces a purple inflorescence (Figure 6). Due to differences in cold tolerance, yellow nutsedge is more prevalent in East



Figure 4: Tapered yellow nutsedge (*Cyperus esculentus*) leaf tip



Figure 5: Yellow nutsedge (*Cyperus esculentus*) inflorescence

Figure 6:
Purple nutsedge
(*Cyperus
rotundus*)
inflorescence



Tennessee, while purple nutsedge is found in greater abundance in West Tennessee.

Kyllingas have leaves that are smaller and less erect than those of yellow nutsedge, but similar in shape and color. Kyllingas can persist under low mowing heights (< 0.25 in) and unlike yellow and purple nutsedge, these plants produce flowers even under regular mowing (Figure 7). Spreading through short rhizomes, kyllinga infestations can form dense mats in a turfgrass stand. Kyllingas are differentiated only by flowering-time. Green kyllinga flowers during all warm months, while false-green kyllinga flowers only during late summer.



Figure 7: Kyllinga (*Kyllinga* spp.) inflorescence

Control Options

Selective Control

Herbicides from multiple families provide selective control of sedges and kyllingas in turfgrass (Table 1). In general, sedges are more easily controlled by these herbicides than either green- or false-green kyllinga. Of the two predominant sedge species in Tennessee, yellow nutsedge is more easily controlled than purple nutsedge. Herbicides for control of sedges and kyllingas are only effective when applied to actively growing plants, so applications should be made from May through August. If sedges and kyllingas are present in areas with poor drainage, long-term control is possible only if drainage issues are resolved.

Image 11.4 oz/acre

Injury will appear about two weeks after application, with complete desiccation developing within three to four weeks. Image is labeled for use in warm-season turfgrass only. Apply this herbicide only after turfgrass has completely greened-up in spring. Image controls several broadleaf weeds, sedges, kyllingas, cool-season grasses and seedling warm-season grasses. Add a non-ionic surfactant at 0.25% v/v to the spray solution.

Monument 0.53 oz/acre Katana 2.25 oz/acre or Tribute Total 3.2 oz/acre

Injury will appear about two weeks after application, with complete desiccation developing within three to four weeks. Tribute Total, Monument and Katana also control certain broadleaf weeds and cool-season grasses in warm-season turf as well. Tribute Total and Monument are labeled for use in zoysiagrass and bermudagrass, while Katana is labeled for use in zoysiagrass, bermudagrass and centipedegrass. Unlike Image, Tribute Total, Monument and Katana can be applied during turfgrass green-up. For all herbicides, add a non-ionic surfactant at 0.25% v/v to the spray solution.

Sedgehammer 1.3 oz/acre

Injury will appear about two weeks after application, with complete desiccation developing within three to four weeks. Sedgehammer is labeled for use on most cool- and warm-season turfgrass species grown in Tennessee. Sedgehammer is less effective on green and false-green kyllinga than Monument, Katana or Image. Add a non-ionic surfactant at 0.25% v/v to the spray solution. Sedgehammer will not effectively control other grassy and broadleaf weeds.

Dismiss 4-12 fl oz/acre

Injury will appear just a few days after application, with complete desiccation occurring in ~1 week. Dismiss is labeled for use on most cool- and warm-season turfgrasses in Tennessee. Dismiss is less effective on green and false-green kyllinga than Monument, Katana or Image. This herbicide is most effective on kyllinga when split-applications are made (see label), as re-growth of kyllingas will likely occur within four weeks after the initial application. Numerous other products contain sulfentrazone (i.e., Solitare) and will have activity on sedge species.

Non-chemical control

Increasing mowing frequency and decreasing mowing height can reduce the vigor of yellow nutsedge; however, proper identification is critical as kyllingas can tolerate low mowing heights (< 0.25 in). It is important to ensure mowing practices do not reduce desirable turfgrass vigor.

Hand-removal of sedges is effective if care is taken to remove all underground tubers and rhizomes. If tubers are not removed, new plants will emerge and repeated hand-weeding will be required.

Final Thoughts

Control of sedges and kyllingas can be difficult. Long-term control of these weeds is possible only if the underlying cause of their competitive advantage is resolved. In the case of sedges and kyllingas, this is often prolonged periods of excessive soil moisture that reduce competition from desirable turfgrass.

This publication contains herbicide recommendations that are subject to change at any time. The recommendations in this publication are provided only as a guide. It is always the herbicide applicator's responsibility, by law, to read and follow all current label directions for the specific herbicide being used. The label always takes precedence over the recommendations found in this publication.

Always refer to the product label for specific information on proper use, tank-mix compatibility and turfgrass tolerance.

Herbicides listed in this publication have provided good to excellent control in research trials conducted at the University of Tennessee; however, other herbicides may also have activity on these weeds. For more information on herbicide selection, please visit University of Tennessee Mobile Weed Manual (MWM) at mobileweedmanual.com. MWM was developed by UT Extension professionals to assist green industry professionals in selecting herbicides for use in turf and ornamentals. MWM is a web-based platform optimized for use on mobile devices such as smartphones and tablets, but it will function on desktop and laptop computers as well. The site provides users with weed control efficacy information for 90 different herbicides, tolerance information for over 2,300 turf and ornamental species, as well as direct links to label and material safety data sheet information on herbicides used for turf and ornamental weed management.

–For more information on turfgrass weed control, visit the University of Tennessee's turfgrass weed science website at www.tennesseeturfgrassweeds.org.

Table 1: Herbicide options for sedge and kyllinga control in warm- and cool-season turf

Product Name	Active Ingredient(s)	Use rate (product/acre)	Turf Species	Yellow nutsedge (<i>Cyperus esculentus</i>) control	Purple nutsedge (<i>Cyperus rotundus</i>) control	Kyllinga spp. control
Certainty	Sulfosulfuron	1.25 oz	Bermudagrass, Zoysiagrass, Centipedegrass, St. Augustinegrass, Seashore Paspalum	E	LND	G
Dismiss	Sulfentrazone	4 - 12 fl oz	Kentucky Bluegrass, Tall Fescue, Perennial Ryegrass, Creeping Bentgrass, Fine Fescue, Bermudagrass, Zoysiagrass, Centipedegrass, St. Augustine, Seashore Paspalum	E	LND	G
Dismiss South	Sulfentrazone + Imazethapyr	9.5 - 14.4 fl oz	Bermudagrass, Zoysiagrass, Centipedegrass	E	LND	G
Image	Imazaquin	8.6 - 11.4 oz	Bermudagrass, Zoysiagrass, Centipedegrass, St. Augustine, Seashore Paspalum	E	LND	E
Katana	Flazasulfuron	1.5 - 2.25 oz	Bermudagrass, Zoysiagrass, Centipedegrass	E	LND	E
Monument	Trifloxysulfuron	0.53 oz	Bermudagrass, Zoysiagrass	E	LND	E
Sedgehammer	Halosulfuron	0.66 - 1.33 oz	Kentucky Bluegrass, Tall Fescue, Perennial Ryegrass, Creeping Bentgrass, Fine Fescue, Bermudagrass, Zoysiagrass, Centipedegrass, St. Augustine, Seashore Paspalum	E	LND	P
Tribute Total	Thiencarbazono + foramsulfuron + halosulfuron	3.2 oz	Bermudagrass, Zoysiagrass	E	LND	LND

*Excellent (E) = 90-100%; Good (G) = 80-90%; Fair (F) = 70-80%; Poor (P) ≤ 60 %; LND = herbicide is labeled for control but no UT efficacy data is available.



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Use of trade or brand names in this publication is for clarity and information; it does not imply approval of the product to the exclusion of others that may be of similar, suitable composition, nor does it guarantee or warrant the standard of the product. The author(s), the University of Tennessee Institute of Agriculture and University of Tennessee Extension assume no liability resulting from the use of these recommendations.

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W 260 03/15 (Rev) 15-0024

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